
Statement

Testimony of
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at Tulane and Xavier Universities
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Committee on Resources
Subcommittee on Water and Power
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Introduction

Mr. Chairman and members of the Subcommittee, I am Dr. John McLachlan, Director of the Center for Bioenvironmental Research (CBR) at Tulane and Xavier Universities in New Orleans, Louisiana, and founding partner of the Long-Term Estuary Assessment Group (LEAG).

Background of CBR and LEAG

Founded in 1989, the CBR is a New Orleans-based scientific research and education partnership between Tulane and Xavier Universities, focusing on environmental and public health issues with a particular emphasis on the lower Mississippi River region. The CBR specializes in researching the ecological and human-health impact of chemical pollutants, environmental and geological conditions of the lower Mississippi River and Gulf of Mexico, environmental signals and sensors, and related issues such as biosensor technology, invasive species, long-term stewardship of contained pollutants, and information technology for environmental management. World renowned for its progressive, multidisciplinary research on aquatic ecosystems, the CBR has a full-time staff of 27 employees and over 80 affiliated researchers in fields ranging from biology to geology, from toxicology to engineering. Current and upcoming funding for the CBR comes from the Department of Energy, Office of Naval Research, U.S. Geological Survey, National Oceanic and Atmospheric Administration, Environmental Protection Agency, U.S. Department of Agriculture, Department of Health and Human Services, and private foundations.

In 1999, the CBR teamed with the Naval Oceanographic Office, National Oceanographic and Atmospheric Administration, and a number of academic, state, and private organizations to form the Long-Term Estuary Assessment Group (LEAG). LEAG (described as the *Lower Estuary Assessment Group* in H.R. 3480) seeks a scientific understanding of the complex Mississippi River / Gulf of Mexico estuary system, how it functions, its resources and threats to its health, and how it can help develop technologies and systems for the benefit of the nation. LEAG views the Mississippi River / Gulf of Mexico estuary as one of America's greatest natural laboratories, offering

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nationally important resources and reflecting the activities of millions of Americans in a vast drainage basin.

As researchers of the lower Mississippi River, the CBR and LEAG offer unique perspectives on the Upper Mississippi River Basin Protection Act of 2001 (H.R. 3480).

Upper Mississippi River Basin Protection Act of 2001: Our Perspective from Downriver

We support H.R. 3480. H.R. 3480 promotes scientific efforts to manage sediment and nutrient loss in the upper Mississippi River and Illinois River basins—that is, those parts of Minnesota, Wisconsin, Illinois, Iowa, and Missouri draining into these rivers between Cairo, Illinois and the headwaters of the Mississippi.

Specifically, H.R. 3480 establishes an integrated program to monitor and model the nutrient and sediment load of the upper Mississippi River, with the ultimate goals of reducing (1) the erosion of these resources from the upper basin and (2) the releases of these constituents to the lower Mississippi and the extended estuary of the Gulf of Mexico.

We offer here our perspectives—as scientists and residents of the lowest part of the Mississippi River—on the benefits of this bill, as well as our suggestions and recommendations for improving it. But more importantly, we wish to communicate to the subcommittee the importance of keeping those Americans living along the lower Mississippi River *involved* and *participating in* upper-Mississippi legislation and management, for, as we all know, downriver communities feel each and every impact upon the river, for better or worse.

While the focus of this bill is the upper Mississippi River basin, its impact will be felt equally, if not more so, by those Americans who live along the lower Mississippi River, and whose quality of life depends in no small part on the environmental health of the Mississippi River / Gulf of Mexico estuary.

We offer these observations of this bill—the pros and cons—from our “downriver” perspective, as scientists researching the Delta region, and as residents of the New Orleans area, a city whose land base was created by the Mississippi, whose economy is dependent on the Mississippi, and whose unique culture is largely a product of the Mississippi.

The Pros

From a lower-river perspective, we see the following “pros” of H.R. 3480:

1. **Dead Zone** Under natural circumstances, the Mississippi River delivers nutrients to the Gulf of Mexico, which stimulate the biological production upon which gulf fisheries depend. Too much of a good thing, however, is harmful: excess nitrogen fertilizers running off upper Mississippi Basin farms enable algae in the Gulf of Mexico to grow to dangerous levels. As the algae die and decompose, they lower oxygen levels in the Gulf (hypoxia), which kills or drives away animal life, including commercially important seafood and sport fish. This hypoxic “Dead Zone” forms annually and attracts the attention of the media and public. It effects the lower Mississippi / Gulf of Mexico estuary region in the following ways:
 - decreases health and extent of commercial fisheries, an industry estimated to be worth \$2.8 billion annually in coastal Louisiana;
 - increases growth of certain algae blooms which are harmful to marine organisms and humans;

- disrupts gulf ecology by eliminating longer-lived species and bottom-dwellers, and shifting productivity to non-hypoxic periods and places;
- decreases recreational fishing opportunities, worth \$1.6 billion annually in coastal Louisiana..

We do not yet know the optimal quantity of river nutrients needed for the ecological health of the Gulf of Mexico, but the efforts of H.R. 3480 to address this research need, and its ultimate goal of reducing excessive nutrients in the river, are positive benefits from the downriver perspective.

2. Dredging Under natural conditions, sediments carried by the Mississippi River are deposited upon the deltaic landscape during periodic floods (thus creating southern Louisiana) or deposited at the mouth of the Mississippi River. With the construction of levees for flood control starting in the early 1700s, these sediments no longer replenished the lands of southern Louisiana, instead accumulating in and along the river and eventually at its mouth. As a major commercial waterway hosting 400,000,000 tons of traffic annually, sections of the lower Mississippi (particularly the passes at the river's mouth) must now be dredged repeatedly by the federal government for the maintenance of shipping lanes. The Army Corps of Engineers districts responsible for the river from St. Louis to the mouth have spent an average of \$84,000,000 annually since 1995 on dredging. In some cases, dredging may stir up pollutants bound to sediment particles at the bottom of the river. Sediment build-up is also burdensome to flood-control infrastructure in Louisiana, particularly the Old River Control Structure and spillways, as well as riverside wharves, docks, and industries. The monitoring of sediment flux in the upper river, and ultimately the reduction of sediment load in the river, are both encouraged by H.R. 3480. We perceive these as benefits to the lower Mississippi River region.

3. Nonpoint-Source Pollution A reduction of sediments and nutrients in the upper Mississippi has the parallel benefit of reducing the quantity of pesticides, herbicides, agricultural feed stock, household pollutants, chemicals on urban surfaces, and bacteria originating from municipal, agricultural, and industrial sources. Less sediment means fewer particles to which these contaminants can bind. These are all benefits to the lower Mississippi River region.

The Cons

From a lower-river perspective, we view the impact of H.R. 3480 as primarily beneficial. We offer these “cons” not as problems with the bill or concerns about its impact on the lower river, but as suggestions which recognize the connectivity of the entire river system.

- 1. Optimal Level of Nutrients Reaching the Gulf** Further research toward understanding the *optimal* level of nutrients reaching the Gulf of Mexico—so as to not to create a “Dead Zone”—can help scientists and managers set realistic targets in reducing nutrients in the upper Mississippi. More research is needed in this area.
- 2. Sediment Flux** That the Mississippi is a vast transporter of eroded sediments to the Gulf of Mexico is complicated by its high level of human control, especially in its lower half and particularly in its last 200 miles. Our work in understanding sediment flux in the lower river will be affected by changes in sediment runoff in the upper river. This too needs to be further researched. Correlating the lower river's fluxes in sediment and depth with changes in the upper river's sediment load can aid in our understanding of how this critically important natural feature functions.
- 3. Invasive Species** Over a decade ago, zebra mussels from the Caspian and Black Seas arrived to North America via ballast water dumped by ships in the Great Lakes region. Since then, this introduced species has invaded the Mississippi River down to New Orleans and beyond, causing significant damage to utilities, shipping, and industrial facilities along the banks of the Mississippi. Scraping mussels from pipes in the Great Lakes region alone costs between \$50 to \$100 million a year. Here we see the Mississippi as a pathway for a biological pollutant, one that can be as costly as excess nutrients and sediment. We suggest that H.R. 3480, with its monitoring and modeling directives, also seize the opportunity to study invasive species in the

Mississippi River system, so that costly invasions may be prevented in the future.

4. **Impact on Louisiana's Fresh-Water Diversion Projects** To reverse the intrusion of salt water upon Louisiana wetlands and to combat the state's severe coastal-erosion problem (caused in large part by the manmade levees' constriction of the river from depositing sediments beyond its banks), federal and state agencies have constructed two major fresh-water diversion projects along the lower river in Louisiana, with more planned. Total costs are well in the hundreds of millions of dollars. The aim of these immense engineering projects is to emulate, as best as modern-day conditions permit, the historic tendency of the river to overflow its banks, deposit its sediments in the backswamp, enrich the wetlands with its nutrients, and push back intruding salt water from the gulf with a plume of fresh river water. We suggest that H.R. 3480 provide for scientific assessments of the impact of reduced sediment and nutrient loads on these fresh-water diversions.
5. **A Mississippi River Summit in New Orleans** Our position on the Mississippi in New Orleans offers us a unique perspective of the connectivity of the upper and lower river, not to mention its tributaries and sub-basins. We literally live on land eroded from the upper basin and drink the water drained from it. In this regard, we note to the subcommittee that the CBR is currently creating a National Center for the Mississippi River in New Orleans, and is actively partnering (through Memoranda of Understanding) with upper-river organizations such the Science Museum of Minnesota, St. Louis Science Center, Illinois State Museum, Mississippi River Museum of Dubuque, Iowa, the Upper Mississippi River Citizen's Commission of Winona, MN, and Mississippi River Basin Alliance. In this spirit, we suggest including in H.R. 3480 a "Mississippi River Summit" to be held at the nascent National Center for the Mississippi River, to coordinate research and activities on both the upper and lower river.

Conclusions

The CBR and LEAG support H.R. 3480. We see in this bill the benefits of monitoring and modeling toward the reduction of sediment and nutrients in the Mississippi—thus reducing the size, intensity, and frequency of the "Dead Zone" in the Gulf of Mexico, the need to dredge the river, and the quantity of pollution in our water supply. But we also stress that upper-river legislation impacts the lower river, and that H.R. 3480 can be more effective by addressing the connectivity of the entire river. LEAG, as a partnership of government, academia, and private groups involved in monitoring and modeling the Mississippi River / Gulf of Mexico estuary, is an ideal entity for conducting such activity.

I thank you for this opportunity to testify on behalf of the CBR and LEAG.